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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,964	07/05/2006	Helmut Pfeiffer	LOPA3008/FJD	7349

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EXAMINER

BARBEE, MANUEL L

ART UNIT	PAPER NUMBER
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2857

MAIL DATE	DELIVERY MODE
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06/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,964

Applicant(s)

PFEIFFER ET AL.

Examiner

Manuel L. Barbee

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/10/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 15-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 15, upon which claims 16-28 depend, contains the phrase "as the case may be". It is unclear what the conditions are for the alternative limitations before this phrase.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 15-17 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,815,323 to Ellinger et al. (Ellinger).

With regard to a mechanically oscillatable unit with three oscillatory members with at least one member connected at an attachment region, as shown in claim 15, Ellinger teaches three transducers connected to a tank (Fig. 3, transducers 14, 16, 18; col. 4, line 51 - col. 5, line 7). With regard to a driver/receiver unit to oscillate and detect oscillations produced by the three oscillatory members, as shown in claim 15, Ellinger

teaches a transmit and receive multiplexer that oscillates the transducers (Fig. 1, transmit and receive multiplexer 34). With regard to attaching the oscillatory members in such a manner that an approximately defined transmission of reaction forces and reaction torques occurs between the mechanically oscillatable unit and the process connection, as shown in claim 15, Ellinger teaches a computing density from the velocity of sounds in the medium (col. 5, lines 12-61).

With regard to bending oscillations, as shown in claim 16, Ellinger teaches a piezo-ceramic material (col. 4, lines 34-38).

With regard to the net reaction forces and forces acting on the process connection being as close to zero as possible, as shown in claim 17, Ellinger teaches low Q characteristics and "ringing" that ends quickly (col. 4, lines 34-45).

With regard to a piezoelectric element, as shown in claim 27, Ellinger teaches a piezo-ceramic material that resonates with low Q characteristics (col. 4, lines 34-38).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18-21 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinger in view of US Patent No. 5,138,886 to Tilley, Sr. (Tilley).

Ellinger teaches all the limitations of claim 15 upon which claims 18-21 and 23-26 depend. Ellinger does not teach that the three oscillatory members are one long rod

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and two short rods, with one short rod and the log rod connected toward the process, a second short rod connected to the long rod away from the process and the long rod connected with the process connection of at least an attachment region, as shown in claim 18. Ellinger does not teach that the two short rods have essentially equal length and mass, as shown in claim 19. Ellinger does not teach a groove/neck that determines the oscillation frequency, as shown in claim 20. Ellinger does not teach that the long rod surrounds a short rod or that a short rod surrounds a log rod coaxially, as shown in claims 21 and 22. Tilley teaches two legs, with a cylindrical inner conductors and outer shells that surround the inner conductor coaxially, that oscillate (Fig. 1, col. 2, line 55 - col. 3, line 37). The oscillation frequency is determined by the length or how deep the leg is submerged in mercury (col. 3 lines 20-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gauge, as taught by Ellinger, to include oscillating legs, as taught by Tilley, because then pressure could have been measured (Tilley, col. 1, lines 29-57).

Ellinger does not teach that the driver receiver is located between the end region of the first short rod and the log rod toward or away from the process, as shown in claims 25 and 26. Tilley teaches oscillators that are located towards a computer but away from a tube of a process (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gauge, as taught by Ellinger, to include oscillators positioned, as taught by Tilley, because then pressure could have been measured (Tilley, col. 1, lines 29-57).

7. Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinger in view of US Patent No. 4,975,615 to Katahara (Katahara).

Ellinger teaches all the limitations of claim 27 upon which claim 28 depends. Ellinger does not teach that the piezoelectric element includes at least two segments, which are polarized in mutually opposite direction, wherein the polarization direction lie parallel to an axis of rotation of said mechanically oscillatable unit, as shown in claim 28. Katahara teaches plates of a piezoelectric member being polarized in opposite directions (col. 4, lines 15-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gauge, as taught by Ellinger, to include oppositely polarized plates, as taught by Katahara, because then a suitable electric pulse would have been created (Katahara, col. 1, lines 14-37).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chung et al. (US RE33837) teach acoustic well logging.

Cunningham et al. (US Patent No. 6,360,175) teach a sensor with three or more drivers.

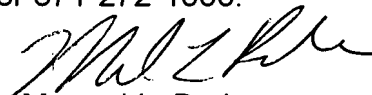
Oeschger (US Patent No. 6,449,566) teach acoustic measurement.

Lapinski et al. (US Patent Application Publication 2005/0086012) teach monitoring fluid flow.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Manuel L. Barbee
Examiner
Art Unit 2857

mlb
June 18, 2007